

WHAT IS CLAIMED:

1        1. An analgesic composition which comprises at least one analgesic drug in  
2 an extended release form in combination with an analgesia-enhancing amount of at least  
3 one nontoxic N-methyl-D-aspartate receptor antagonist in an immediate release form.

1        2. The analgesic composition of Claim 1 wherein the nontoxic NMDA  
2 receptor antagonist is at least one member selected from the group consisting of  
3 dextromethorphan, dextrorphan, memantine, amantidine, d-methadone and their  
4 pharmaceutically acceptable salts.

1        3. The analgesic composition of Claim 1 wherein the nontoxic NMDA  
2 receptor antagonist is present in an immediate release carrier.

1        4. The analgesic composition of Claim 1 wherein the analgesic drug is  
2 selected from the group consisting essentially of non-narcotic analgesics, coal tar  
3 analgesics, nonsteroidal anti-inflammatory drugs, gabapentin, substance P antagonists,  
4 capsaicin, capsaicinoids, and cyclooxygenase-II (COX II) inhibitors.

1        5. The analgesic composition of Claim 1 wherein the weight ratio of the  
2 analgesic drug to the nontoxic NMDA receptor antagonist ranges from about 2:1 to about  
3 1:10.

1           6.       The analgesic composition of Claim 1 wherein the weight ratio of the  
2       analgesic drug to the nontoxic NMDA receptor antagonist ranges from about 1:1 to about  
3       1:5.

1           7.       The analgesic composition of Claim 1 wherein the analgesic drug is an  
2       analgesically effective amount of at least one opioid analgesic and the analgesic  
3       composition is substantially free of opioid antagonist.

1           8.       The analgesic composition of Claim 7 wherein the opioid analgesic is at  
2       least one member selected from the group consisting of alfentanil, allylprodine,  
3       alphaprodine, anileridine, benzylmorphine, bezitramide, buprenorphine, butorphanol,  
4       clonitazene, codeine, desomorphine, dextromoramide, dezocine, diamprodime,  
5       diamorphine, dihydrocodeine, dihydromorphine, dimenoxadol, dimepheptanol,  
6       dimethylthiambutene, dioxaphetyl butyrate, dipipanone, eptazocine, ethoheptazine,  
7       ethylmethylthiambutene, ethylmorphine, etonitazene, fentanyl, heroin, hydrocodone,  
8       hydromorphone, hydroxypethidine, isomethadone, ketobemidone, levorphanol,  
9       levophenacylmorphan, lofentanil, meperidine, meptazinol, metazocine, methadone,  
10      metopon, morphine, myrophine, narceine, nicomorphine, norlevorphanol, normethadone,  
11      nalorphine, nalbuphine, normorphine, norpipanone, opium, oxycodone, oxymorphone,  
12      papaveretum, pentazocine, phenadoxone, phenomorphan, phenazocine, phenoperidine,  
13      piminodine, piritramide, propheptazine, promedol, properidine, propoxyphene,  
14      sufentanyl, tilidine, tramadol and their pharmaceutically acceptable salts.

1        9.     The analgesic composition of Claim 7 wherein the opioid analgesic is at  
2     least one member selected from the group consisting of codeine, dihydrocodeine,  
3     hydrocodone, hydromorphone, levorphanol, meperidine, methadone, morphine,  
4     oxycodone, oxymorphone, propoxyphene and their pharmaceutically acceptable salts.

1        10.    The analgesic composition of Claim 8 wherein the nontoxic NMDA  
2     receptor antagonist is at least one member selected from the group consisting of  
3     dextromethorphan, dextrorphan, memantine, amantidine, d-methadone and their  
4     pharmaceutically acceptable salts.

1        11.    The analgesic composition of Claim 1 wherein the extended release form  
2     is an extended release carrier comprising a base material selected from the group  
3     consisting of a hydrophilic polymer, a hydrophobic polymer, a long chain hydrocarbon, a  
4     polyalkylene glycol, higher aliphatic alcohols, acrylic resins, and mixtures thereof.

1        12.    The analgesic composition of Claim 11 wherein the nontoxic NMDA  
2     receptor antagonist is applied to the extended release carrier's exterior surface.

1        13.    The analgesic composition of Claim 1 wherein the extended release form  
2     comprises a base material having a coating that controls the release of the analgesic drug.

1        14.    The analgesic composition of Claim 13 wherein the coating includes the  
2     nontoxic NMDA receptor antagonist.

1        15.     The analgesic composition of Claim 1 which is a liquid dosage form.

1        16.     The analgesic composition of Claim 15 which is an injectable dosage  
2     form.

1        17.     The analgesic composition of Claim 7 wherein the weight ratio of the  
2     opioid analgesic to the nontoxic NMDA receptor antagonist is about 1:1.

1        18.     The analgesic composition of Claim 7 wherein the daily dosage of opioid  
2     analgesic is from about 1 mg to about 800 mg per 70 kg body weight and the daily  
3     dosage of nontoxic NMDA receptor antagonist is from about 10 mg to about 750 mg per  
4     70 kg body weight.

1        19.     The analgesic composition of Claim 7 wherein the daily dosage of opioid  
2     analgesic is from about 10 mg to about 500 mg per 70 kg body weight and the daily  
3     dosage of nontoxic NMDA receptor antagonist is from about 30 mg to about 500 mg per  
4     70 kg body weight.

1        20.     The analgesic composition of Claim 7 wherein the opioid analgesic is  
2     selected from the group consisting of fentanyl and sufentanil in a daily dosage of from  
3     about 100 µg to about 6 mg per 70 kg body weight and the daily dosage of nontoxic  
4     NMDA receptor antagonist is from about 10 mg to about 750 mg per 70 kg body weight.

1        21. An analgesic composition which comprises an analgesically effective  
2 amount of at least one opioid analgesic selected from the group consisting of codeine,  
3 dihydrocodeine, hydrocodone, hydromorphone, levorphanol, meperidine, methadone,  
4 morphine, oxycodone, oxymorphone, propoxyphene, tramadol and their pharmaceutically  
5 acceptable salts in an extended release form, and an opioid analgesia-enhancing amount  
6 of dextromethorphan in an immediate release form, wherein the analgesic composition is  
7 substantially free of opioid antagonist.

1        22. The analgesic composition of Claim 21 wherein the dextromethorphan is  
2 present in an immediate release carrier.

1        23. The analgesic composition of Claim 21 wherein the extended release form  
2 is an extended release carrier comprising a base material selected from the group  
3 consisting of a hydrophilic polymer, a hydrophobic polymer, a long chain hydrocarbon, a  
4 polyalkylene glycol, higher aliphatic alcohols, acrylic resins, and mixtures thereof.

1        24. The analgesic composition of Claim 23 wherein the dextromethorphan is  
2 applied to the extended release carrier's exterior surface.

1        25. The analgesic composition of Claim 21 wherein the weight ratio of the  
2 opioid analgesic to the nontoxic NMDA receptor antagonist ranges from about 2:1 to  
3 about 1:10.

1        26.    The analgesic composition of Claim 21 wherein the weight ratio of the  
2    opioid analgesic to the nontoxic NMDA receptor antagonist ranges from about 1:1 to  
3    about 1:5.

1        27.    The analgesic composition of Claim 21 wherein the weight ratio of the  
2    opioid analgesic to the dextromethorphan is about 1:1.

1        28.    The analgesic composition of Claim 21 wherein the daily dosage of opioid  
2    analgesic is from about 1 mg to about 800 mg per 70 kg body weight and the daily  
3    dosage of dextromethorphan is from about 10 mg to about 750 mg per 70 kg body  
4    weight.

1        29.    The analgesic composition of Claim 21 wherein the daily dosage of opioid  
2    analgesic is from about 10 mg to about 500 mg per 70 kg body weight and the daily  
3    dosage of dextromethorphan is from about 30 mg to about 500 mg per 70 kg body weight  
4    per unit dose.

1        30.    An analgesic composition consisting essentially of at least one analgesic  
2    drug in an extended release form in combination with an analgesia-enhancing amount of  
3    at least one nontoxic N-methyl-D-aspartate receptor antagonist in an immediate release  
4    form.

1        31.    The analgesic composition of Claim 30 wherein the nontoxic NMDA  
2    receptor antagonist is at least one member selected from the group consisting of

3 dextromethorphan, dextrorphan, memantine, amantidine, d-methadone, and their  
4 pharmaceutically acceptable salts.

1       32.     The analgesic composition of Claim 30 wherein the nontoxic NMDA  
2 receptor antagonist is present in an immediate release carrier.

1       33.     The analgesic composition of Claim 30 wherein the analgesic drug is  
2 selected from the group consisting essentially of non-narcotic analgesics, coal tar  
3 analgesics, nonsteroidal anti-inflammatory drugs, gabapentin, substance P antagonists,  
4 capsaicin, capsaicinoids, and cyclooxygenase-II (COX II) inhibitors.

1       34.     The analgesic composition of Claim 30 wherein the weight ratio of the  
2 analgesic drug to the nontoxic NMDA receptor antagonist ranges from about 2:1 to about  
3 1:10.

1       35.     The analgesic composition of Claim 30 wherein the weight ratio of the  
2 analgesic drug to the nontoxic NMDA receptor antagonist ranges from about 1:1 to about  
3 1:5.

1       36.     The analgesic composition of Claim 30 wherein the weight ratio of the  
2 analgesic drug to the nontoxic NMDA receptor antagonist is about 1:1.

1        37. The analgesic composition of Claim 30 wherein the analgesic drug is an  
2        analgesically effective amount of at least one opioid analgesic and the analgesic  
3        composition is substantially free of opioid antagonist.

1        38. The analgesic composition of Claim 37 wherein the opioid analgesic is at  
2        least one member selected from the group consisting of alfentanil, allylprodine,  
3        alphaprodine, anileridine, benzylmorphine, bezitramide, buprenorphine, butorphanol,  
4        clonitazene, codeine, desomorphine, dextromoramide, dezocine, diamprodime,  
5        diamorphine, dihydrocodeine, dihydromorphine, dimenoxadol, dimepheptanol,  
6        dimethylthiambutene, dioxaphetyl butyrate, dipipanone, eptazocine, ethoheptazine,  
7        ethylmethylthiambutene, ethylmorphine, etonitazene, fentanyl, heroin, hydrocodone,  
8        hydromorphone, hydroxypethidine, isoimethadone, ketobemidone, levorphanol,  
9        levophenacylmorphan, lofentanil, meperidine, meptazinol, metazocine, methadone,  
10      metopon, morphine, myrophine, narceine, nicomorphine, norlevorphanol, normethadone,  
11      nalorphine, nalbuphine, normorphine, norpipanone, opium, oxycodone, oxymorphone,  
12      papaveretum, pentazocine, phenadoxone, phenomorphan, phenazocine, phenoperidine,  
13      piminodine, piritramide, proheptazine, promedol, properidine, propoxyphene,  
14      sufentanyl, tilidine, tramadol and their pharmaceutically acceptable salts.

1        39. The analgesic composition of Claim 37 wherein the opioid analgesic is at  
2        least one member selected from the group consisting of codeine, dihydrocodeine,  
3        hydrocodone, hydromorphone, levorphanol, meperidine, methadone, morphine,  
4        oxycodone, oxymorphone, propoxyphene and their pharmaceutically acceptable salts.

1        40.     The analgesic composition of Claim 37 wherein the nontoxic NMDA  
2     receptor antagonist is at least one member selected from the group consisting of  
3     dextromethorphan, dextrorphan, memantine, amantidine, d-methadone and their  
4     pharmaceutically acceptable salts.

1        41.     The analgesic composition of Claim 30 wherein the extended release form  
2     is an extended release carrier comprising a base material selected from the group  
3     consisting of a hydrophilic polymer, a hydrophobic polymer, a long chain hydrocarbon, a  
4     polyalkylene glycol, higher aliphatic alcohols, acrylic resins, and mixtures thereof.

1        42.     The analgesic composition of Claim 41 wherein the nontoxic NMDA  
2     receptor antagonist is applied to the extended release carrier's exterior surface.

1        43.     The analgesic composition of Claim 30 wherein the extended release form  
2     comprises a base material having a coating that controls the release of the analgesic drug.

1        44.     The analgesic composition of Claim 43 wherein the coating includes the  
2     nontoxic NMDA receptor antagonist.

1        45.     The analgesic composition of Claim 30 which is a liquid dosage form.

1        46.     The analgesic composition of Claim 45 which is an injectable dosage  
2     form.

1        47.     The analgesic composition of Claim 37 wherein the weight ratio of the  
2     opioid analgesic to the nontoxic NMDA receptor antagonist ranges from about 2:1 to  
3     about 1:10.

1        48.     The analgesic composition of Claim 37 wherein the weight ratio of the  
2     opioid analgesic to the nontoxic NMDA receptor antagonist ranges from about 1:1 to  
3     about 1:5.

1        49.     The analgesic composition of Claim 37 wherein the weight ratio of the  
2     opioid analgesic to the nontoxic NMDA receptor antagonist is about 1:1.